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ABSTRACT

This paper defines performance measurement as the clarification of objectives and standards, identification of key activities, data collection and analysis, and formative evaluation of services. It then examines some of the factors involved in using performance measurement to evaluate public services activities, and analyzes performance measurement in three parts. The first part provides a general background on current evaluation theory. Building on this theory, the second part applies performance measurement to existing library activities through a model. The concluding section looks at the forces for and against public services performance measurements and future trends. The bibliography includes a selection of articles related to performance measurement; those relating to public services are grouped according to library functions (circulation, reference, etc.), and particularly useful methodologies or approaches are noted in the annotations. (THC)

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Performance Measurement for Public Services in Academic and Research Libraries

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* * *

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TABLE OF CONTENTS

INTRODUCTION 1

PART I EVALUATION THEORY 3

Chart:
Examples of Evaluation Types and
Possible Library Applications 9

Notes, Part I 11

PART II A MODEL FOR PERFORMANCE MEASUREMENT
IN PUBLIC SERVICES 13

Chart:
Model of Performance Measurement for Public Services 15

Prerequisites 16
Library Mission Statements 16
Public Services Policy and Goals 16

Input 17
Program and Budget Development-
Library Staff, Materials, Facilities 17

Outcomes 17
Objectives 17
Establishing Standards 19
User Expectations 20

Programs 20
Document Delivery 21
Collection Development 22
Provision of Information 23
Instruction 26

Notes, Part II 28

PART III FUTURE TRENDS IN PERFORMANCE MEASUREMENT 29

BIBLIOGRAPHY 31

INTRODUCTION

The need for measurement is no longer a new theme for academic and research libraries. The analysis of library collections, studies of circulation figures, cost studies of technical services functions, and other quantitative measures have been popular topics in the literature for a number of years. And there has been increasing emphasis on the importance of measurable objectives and evaluation for library staff as well. An examination of articles dealing with measurement of library performance reveals two dominant, and somewhat disparate, themes.

The first is the application of statistical methods to evaluate a variety of library funtions. Data is collected and subjected to extensive quantitative analysis; the result is a more or less complex method for measuring the efficiency of a particular library operation. Additional manipulation of data allows some measure of effectiveness to be developed. Many of these studies have contributed to the theoretical discussion of library performance measurement, and have provided valuable insights on individual library effectiveness. However, their complicated and time-consuming methodology often discourages the widespread application of such studies in the day-to-day management of academic libraries. For the most part, they do not focus on the practical questions of using and benefiting from performance measurement.

This question has inspired another frequent theme in the literature of library evaluation — how to manage more effectively. Here the emphasis has been on the application of statistics or performance measurement to decision-making, often through models developed for business. A production-oriented business approach cannot be applied equally well to all library areas, however. Many library functions, particularly those in public services, are inherently difficult to measure and evaluate. The number of books circulated, or the questions answered at the reference desk, indicate the quantity of work but not the level of service.

The quality of the service in academic libraries is not a simple reflection of the units produced. It is defined in terms of the needs of the library user, and the skills of the library staff in assessing and meeting those needs. Appropriate levels of service are determined for an in-

dividual library with a particular clientele. Some standard of excellence, either internal or external, must be developed to serve as a basis of measurement.

Despite the difficulty of the task, there is increasing interest in measuring the effectiveness of public services as librarians become aware of the potential benefits. Performance measurement can provide library administrators with an objective indicator of the quality of service useful for supporting budget requests, public relations within the university, and planning and allocating resources. At the department level the measures can help in setting priorities and pinpointing activities which require more staff support or training. For individual librarians, performance measurement provides a baseline for developing personal objectives. Perhaps most important, performance measures can encourage higher standards among all library staff, resulting in better service for the library user.

Nevertheless, performance measurement for public services is still in the experimental stage as far as most academic libraries are concerned. Hesitation to implement performance measures stems at least in part from the identification of the term with the need for extensive data collection and analysis. This is, in fact, only one step in performance measurement, and probably not the most important step. The clarification of objectives and standards, identification of key activities, and formative evaluation of services certainly deserve equal, if not more, attention. Commitment to performance measurement also implies a willingness to change when necessary to improve service.

A number of research articles make the implicit assumption that both the commitment and the preconditions necessary for successful performance measurement already exist in libraries and that only the appropriate methodology is lacking. But the types of problems encountered in implementing performance measurement programs would indicate that the opposite is true. Most academic libraries, and especially their public services departments, have some difficulty in formulating meaningful measurable objectives and in using the results of evaluation programs effectively. Discussions of measurement technique, while necessary, focus attention too narrowly on one segment of the performance measurement process. The initial motivation for a library to undertake such a process and the anticipated benefits can be overshadowed as a result.

The purpose of this paper is to examine some of the realities involved in using performance measurement to evaluate public services activities. It analyzes performance measurement from three perspectives. Part I provides a general background on current evaluation theory. Building upon this theory, Part II applies performance measurement to existing library activities through a model. Finally, Part III briefly looks at the forces for and against public services performance measurement, and future trends. The bibliography includes a selection of articles related to performance measurement: those relating to public services are grouped according to library functions (circulation, reference, etc.), and particularly useful methodologies or approaches are noted in the annotations.

PART I

EVALUATION THEORY

Performance measurement, like many other evaluation concepts, is difficult to define with precision. The term itself has been adopted by government, business, non-profit service agencies and libraries to describe several different types of evaluation.

In librarianship and in other fields, the terms "output measures," "effectiveness" and "performance measures" have been used sometimes as distinct and sometimes as general, interchangeable concepts. The term "performance measurement" gained popularity as a means of evaluating government and public sector programs. One handbook for local government officials defines it as "the regular collection of specific information about the effectiveness, the quality, and the efficiency of government services and programs." [1]

Performance measurement for libraries was defined recently in *Objective Performance Measures for Academic and Research Libraries*, by Paul B. Kantor:

> *In everyday speech, "objectives" and "goals" are interchangeable but in modern management "objectives" mean "specific, operationally defined measures related to a goal." Goals are broad — and should be. Objectives are narrow, and clearly stated. The operational definitions of objectives are performance measures; they provide the information, frequently in numerical form, that is part of the "feedback" needed for effective management. Performance measures may deal with either the quantity or the quality of the library's activities."* [2]

Other library studies have employed different terminology. Philip M. Morse, for example, writes: "A measure of effectiveness is a number designed to indicate the operational state of

some part of the system. It is not usually obtained directly and simply from data. Most useful measures are obtained by processing the data by means of a mathematical model chosen to represent some part of the operation." [3]

Public libraries have been encouraged to use the term 'output measures," and the Public Library Association manual, *Output Measures for Public Libraries,* provides a standardized procedure for collecting such measures. "The measures are indicators of library output such as the number of items circulated per resident of the community. They are characterized as being related to extensiveness and effectiveness, as being potentially affected by decisions made by library managers, and as being comparable." [4]

For the purposes of this paper, the statement about performance measurement from the National Library of Canada handbook on *Performance Measurement in Federal Libraries* is most useful. Besides providing a working definition of the term itself, it gives some insight into what performance measurement can and cannot accomplish.

> *Performance measurement is a management tool which allows the administrator to obtain the concrete performance data needed to arrive at a meaningful evaluation of an organization's performance. The term "performance measurement" in this context refers to the performance of an organization as a unit rather than the performance of individuals within the organization. The need for continuous monitoring of the performance of organizations in both the public and private sectors has been cited often in recent months and years, as resources have diminished and concern for accountability has increased.*
>
> *A basic prerequisite for the evaluation process is the formulation and articulation of a mandate, and of specific, preferably quantifiable objectives or performance expectations. Once objectives have been established and clearly defined, the performance of an organization can be measured against its objectives and evaluated accordingly.*
>
> *Other elements in the measurement procedure include the selection of appropriate performance indicators or yardsticks against which evaluative judgements of performance can be made; the selection of specific criteria with which performance will be assessed; and the selection of a performance standard, or a performance level achieved during any given period of time. It must be stressed that no single "best" approach to performance measurement has been identified; each unique organization must design a system which best meets its special information needs.*
>
> *It should also be emphasized that performance measurement is simply a technique which permits rational decision-making by pro-*

viding the manager with the data upon which decisions are founded; it cannot supplant the judgmental process of a manager. Performance measurement renders the performance of an organization visible in an imprecise manner by producing quantitative and qualitative approximations of actual performance to measure change in performance over time. The technique cannot in itself determine whether the organization's objectives are appropriate or realistic nor can it determine if there are alternate means to better achieve these objectives. [5]

Whatever definition they use, studies published in the service-oriented fields continue to stress the need for better accountability through more objective evaluation of programs and services, because of budgetary pressures, the need to allocate limited resources more effectively, and adaptation to new technology. Libraries are not alone in facing such pressures, nor have they pioneered in most efforts to obtain objective measurement of services. Rather, the methodology developed to evaluate programs in other fields, drawn from either academic or applied research, has been adapted to library needs.

Libraries have much in common with other human service organizations, but there are also some key differences. Social service programs may rise or fall based on the results of a single evaluation study; library functions are generally not so susceptible to dramatic changes from evaluation. Provision of telephone reference service, for example, has not been revamped in most academic libraries. Yet a study of *The Accuracy of Telephone Reference/Information Service in Academic Libraries* by Myers and Jirjees confirms that factual-type telephone questions are answered correctly only 50% of the time at a carefully selected sample of academic libraries. [6] Similarly, discovery of an excessive lag in interlibrary loan turn-around time will not generally result in a decision to discontinue the service. Most library services are traditional rather than experimental, and it is assumed that they will continue into the forseeable future. If evaluation is carried out at all it will most often be formative, influencing the direction and future development of the service.

Another variable is the role of outside consultants in the evaluation process. Social agencies and service programs supported by government funding often build an evaluation component into their budgets. Outside evaluation is not as widespread in libraries and consultant costs may require additional insititutional support. As a result, the initiation, design and implementation of an evaluation study tend to be carried out by library staff who have other priorities and commitments. This places contraints on both the time available and the methodology suitable for the evaluation process.

Evaluation of library performance, then, will not necessarily replicate any one model developed for social service organizations. The purpose of the evaluation, the resources which are available to carry it out, and the expected results will help to determine the appropriate scope and methodology. An evaluation study intended to support a budget request for additional library staff may be quite different from one which aims to identify critical elements in quality reference service. Input from library users may be essential to measuring performance in services such as bibliographic instruction, but of little value in measuring shelf availability.

The extent to which library performance measurment can build upon the evaluation research in other fields also depends upon these factors. Some familiarity with the evaluation methods commonly used in other service areas allows more selective adaptation for library needs.

Evaluation research constitutes a field of study in itself, complete with trends, critics and debates about the effectiveness and validity of certain types of evaluation methods. Fortunately for our purposes, the intricacies of such debates are less important than a broad overview of the major developments within the field. Libraries can benefit from the evaluation work that has already been accomplished; it is a waste of energy to begin the cycle of investigating performance measurement all over again. As the first issue of *Evaluation Studies Review Annual* puts it,

> *The methodological and "philosophical" literature on evaluation is distressingly repetitious. Writers in one field exhume the same dead horses that writers in a second field interred years before. One who reads widely is in jeopardy of gagging from repeated swallowing of dry banalities about how evaluation can be distinguished as either "processes" or "outcomes," or how relationships between program personnel and evaluators must be handled sensitively, or how evaluation should serve decision-makers. Scholars in each new area of evaluation need not lumber xenophobically up the evolutionary ladder acting as though the problems of their field are so unique that no one could have addressed them before. ...such disregard of what has been written before is poor scholarship.* [7]

Since a number of the key questions about library performance measurement have already been debated in other fields, a brief review is in order.

In the 1950's advances in methods of data collection through surveys and other instruments had combined with computerized statistical analysis to make possible a number of large scale evaluations of government programs. Much of this evaluation was unsophisticated by today's standards. A typical approach was the simple aggregation of available data: the number of people employed, or classes held, or immunizations given, as compared to the stated objectives of the program. Emphasis was on quantity; it was assumed that the more people reached, the better the program. A comparable stage in library evaluation would be the collection of circulation and turnstyle statistics as direct indicators of the population served.

By the 1960's, as federally-funded programs were required to have an evaluation component, evaluation research emerged as a distinct field of study. A wide variety of agencies — health, education, criminal justice, transportation and so on — began to develop more complex methods for evaluating their services. The limitations of simple data collection were recognized. New research designs were tested and debated. A seminal article by Donald T. Campbell, "Reforms as Experiments," critiqued the methodology of many published evaluation studies and advocated a rigorous application of scientific methodology. [8] There were, however, numerous difficulties in applying an experimental model to the evaluation of social service programs. Establishing control groups, valid pre- and post testing, and replicating of results all presented problems.

While the experimental approach remained an ideal, a proliferation of other evaluation methods enjoyed some popularity during the 1970's. The most traditional method of evaluation is the "goal-attainment" or "behavioral objectives" model. Identification of clear, specific and measurable objectives is the essence of this model. A brief outline of the process would be:

1. Identify objectives
2. Determine key variables
3. Measure outcomes
4. Evaluate success of program

Although this is a close approximation of a scientific, experimental research design, evaluators have come to realize that this traditional model has limitations in practice. Many service programs simply do not have objectives which can be specified in terms that allow precise measurement. One alternate approach has been to measure the effort, or program inputs, such as personnel, budget, and activity levels. Inputs, however, do not correlate reliably with program effectiveness.

A hypothetical example can illustrate this process and its potential shortcomings for public services. The head of reference at a medium size academic library decides that the number of reference questions answered annually is considerably lower than at libraries of comparable size. An objective is established to increase the number of questions answered during the next academic year. Key variables are determined to be the hours of reference service and the number of librarians scheduled for desk duty. Reference service is extended until 10 pm daily and the hours each librarian spends on desk duty are increased 25%. At the end of the year, the number of questions answered is compared to the previous two years. The result is a 30% increase. On this basis, the department head considers the objective to be successfully met and decides to continue the new schedule.

Among the many problems in this example is the initial confusion between quantity and quality of service. A different type of evaluation is needed to determine if reference questions are being answered more correctly, as well as more frequently. While attention is focused on the simple number of questions, what happens to the quality of the other services previously offered by the reference staff? With limited resources and a very broad service mission, the reference department may not wish to focus on one area to the exclusion of others.

Systems analysis has the advantage of balancing both inputs and outcomes to determine effectiveness. In a library setting, the systems model of evaluation allows consideration of the whole organization and its context. Rather than having to specify a series of separate objectives and measure individual attainment, functions such as circulation, reference and interlibrary loan can be viewed as part of an integrated service. Potential problems of competition for new resources among different units are more likely to be avoided.

In contrast to the goal-attainment model of evaluation which is concerned with degree of success in reaching a specific objective, the system model establishes the degree to which an organization realizes its goals under a given set of conditions. ...the key question is: "Under the given conditions, how close does the organizational allocation of resources approach an optimum distribution?" Optimum is the key word and what counts is a balanced distribution of resources among all organizational objectives, not maximal satisfaction of any one goal. From this perspective, just as a lack of resources for any one goal may be dysfunctional so may an excess of resources for the goal be equally dysfunctional. In the latter instance, superfluous attention to one goal leads to depressed concern for the others and problems of coordination and competition will arise. [9]

The systems model also has been shown to be more effective than goal-attainment evaluation in stimulating the utilization of evaluation findings. Since follow-up studies have demonstrated that formal evaluations often have little impact on changing program activities, this is an important advantage.

Both systems and goal-attainment models are designed to create information for management and decision-making. In his discussion of "Assumptions Underlying Evaluation Models," House groups these approaches together as "managerial models."

In their orientation toward management, the managerial models look for ways in which management can monitor and improve the programs. Accountability, efficiency, and quality control are major management concerns. Evaluation has something of a watchdog function. The managerial school also tends to be based on a common epistemology, which I will label "objectivism." Evaluation information is considered to be "scientifically objective." This objectivity is achieved by using "objective" instruments like tests or questionnaires. Presumably results produced with these instruments are reproducible. The data are analyzed by quantitative techniques which are also "objective" in the sense that they can be verified by logical inspection regardless of who uses the techniques. [10]

House goes on to question the possibility and the desirability of obtaining completely objective results when evaluating complex programs which tend to change over time. He presents an alternative "goal free" model developed by Scriven for evaluating educational programs. [11] In this approach, the process of achieving the objectives and the unintended effects of a program must be evaluated, as well as the measurable outcomes. Subjective judgments on the part of users can be more important than objective data collection in determining the real value of a service. In contrast to the managerial models, the basis of evaluation is the consumer-defined quality of the results regardless of the original statement of objectives.

There are dozens of other types of evaluations which have been developed for particular programs and then adapted to different areas. *Practical Evaluation*, for example, lists 33 commonly used evaluation methods and the kinds of questions they are designed to answer. Possible applications for libraries are included in the following chart. [12]

EXAMPLES OF EVALUATION TYPES AND POSSIBLE LIBRARY APPLICATIONS

Sample Types	Key Questions	Library Applications
Appropriateness evaluation	What services should clients be receiving? To what entent are current services appropriate to client need?	To analyze the results of a user survey; establish match between current services and expressed user needs. Are services given at the appropriate level? Are there any unmet demands?
Criterion-referenced evaluation	To what extent has a specific objective been attained at the desired level or attainment (the criterion)?	To provide a basis for comparing services among different libraries to encourage the development of standards for excellence.
Effort evaluation	What are the inputs into the program in terms of personnel, staff/client ratios, and other descriptors of levels of activity and effort in the program?	To support budget requests for a type of service which has been established as beneficial and necessary for the library users — for example staffing at the reference desk. Most effective in combination with other types of evaluation.
Extensiveness evaluation	To what extent is this program able to deal with the total problem? How does the present level of services compare to the needed level of services?	To justify increased support for a new program; to encourage consideration of the total institutional environment when evaluating library programs; perhaps some services could be offered in cooperation with other campus units such as the computer center.
Impact evaluation	What are the direct and indirect program effects on the larger community of which it is a part?	Results could be used to develop a public relations campaign to promote a particular service, or to develop a marketing strategy for pubic service.
Process evaluation	What are the strengths and weaknesses of day-to-day operations? How are program processes perceived by staff, clients, and others. What are the basic program processes? How can these processes be improved?	To involve library staff in analyzing and improving a program and their contribution to it; to encourage behavioral change and improve communication among library staff and users.
Social indicators	What routine social and economic data should be monitored to assess the impacts of this program (e.g. health statistics, crime statistics, housing statistics, employment statistics)?	To incorporate data about the university and academic community into library planning, (e.g. enrollment figures, retention rates, faculty publication statistics) as well as basic library statistics (turnstile counts, circulation, collection size).
Utilization-focused evaluation	What information is needed and wanted by decision makers, information users, and stakeholders that will actually be used for program improvement and to make decisions about the program?	To ensure that decisions about library services are informed by relevant information; to focus the attention of the administration on library services.

Public services in libraries present a difficult, but by no means unique, challenge to evaluation methodology. Areas such as health care, education, and mental health are characterized by many of the same evaluation problems — that is one reason for the multiplicity of evaluation models. Different service programs require different strategies, and practitioners in other fields have felt free to select that combination which best suits their particular needs. Some of the basic insights available from current evaluation theory are:

- No one model can satisfy all evaluation needs.
- There are intrinsic difficulties in applying a purely experimental model to social service programs.
- Attention to specific objectives is balanced with concern for the overall quality of the program or organization.
- Clarifying the purpose and potential applications of the evaluation in advance will increase the chances of the results being used.

The discussion of performance measurement in Part II incorporates these insights about the evaluation process.

NOTES
PART I

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9. Schulberg, Herbert C. and Baker, Frank, ''Program Evaluation Models and the Implementation of Research Findings,'' in Caro, Francis G. (ed) *Readings in Evaluation Research* (N.Y.: Russell Sage Foundation, 1977): 59.

10. House, Ernest, ''Assumptions Underlying Evaluation Models'', *Educational Researcher*, 7 (1978): 6.

11. Ibid, p.8

12. Patton, Michael Quinn, *Practical Evaluation* (California: Sage Publications, 1982). The column on library applications in this paper is original.

PART II

A MODEL FOR PERFORMANCE MEASUREMENT IN PUBLIC SERVICES

One method for determining the ideal model for performance measurement in public services is to design and test a number of approaches at different, but comparable, libraries and determine which approach yields the most significant results. Another method is to study existing performance measurement practices at a large number of libraries and select the best features of each. Yet another alternative is to study one or two libraries with exemplary performance measurement systems and report on their methodology in some detail.

All these methods have distinct advantages, but they share a common shortcoming. There are simply not enough academic libraries with functioning performance measurement programs to make them feasible. Library interest in adopting a program of performance measurement is tempered by questions about feasibility. What investment of time and technical expertise will be required? What will be the payoff in terms of improvement of services? No one wants to add yet another layer of surveys and statistics to the library without some assurance that the results will be beneficial and applicable to public services concerns and priorities.

Performance measurement is certainly not a short-cut to better library service. A year or more may elapse between the initial discussion/planning stage and implementation of a program. During this period, public services staff will devote considerable time to discussing general and specific objectives, establishing standards of service, designing or adapting measurement techniques and clarifying their own expectations about performance measurement. A great deal can be learned from these activities, but they are still only the prerequisites for performance measurement. Once the collection of data begins, there will be a cycle of testing, analysis, and comparison of results. Many public services activities are directly tied to the academic calendar, so this cycle may take up to another year to complete. Finally, in the third year of the process, one can begin to look for benefits directly attributable to performance measurement.

Commitment to an extended process, then, is one of the preconditions for a successful performance measurement program. Among the other basic elements are:

- Support from the library administration
- Willingness to involve all public services staff
- Definition of the library mission
- Consensus on major public services objectives
- Agreement on a level or standard for quality service
- Identification of key measurable objectives
- Means of obtaining input from library users
- Means to collect and analyze relevant data (or to hire outside consultants for this purpose)
- Mechanism for utilizing results to improve service
- Commitment to an ongoing evaluation process.

Many of these factors are discussed in more detail as part of the model for performance measurement.

What benefits can a library expect from the time and effort which performance measurement requires? Results will differ according to the specific situation, but some positive aspects of the performance measurement process are that it:

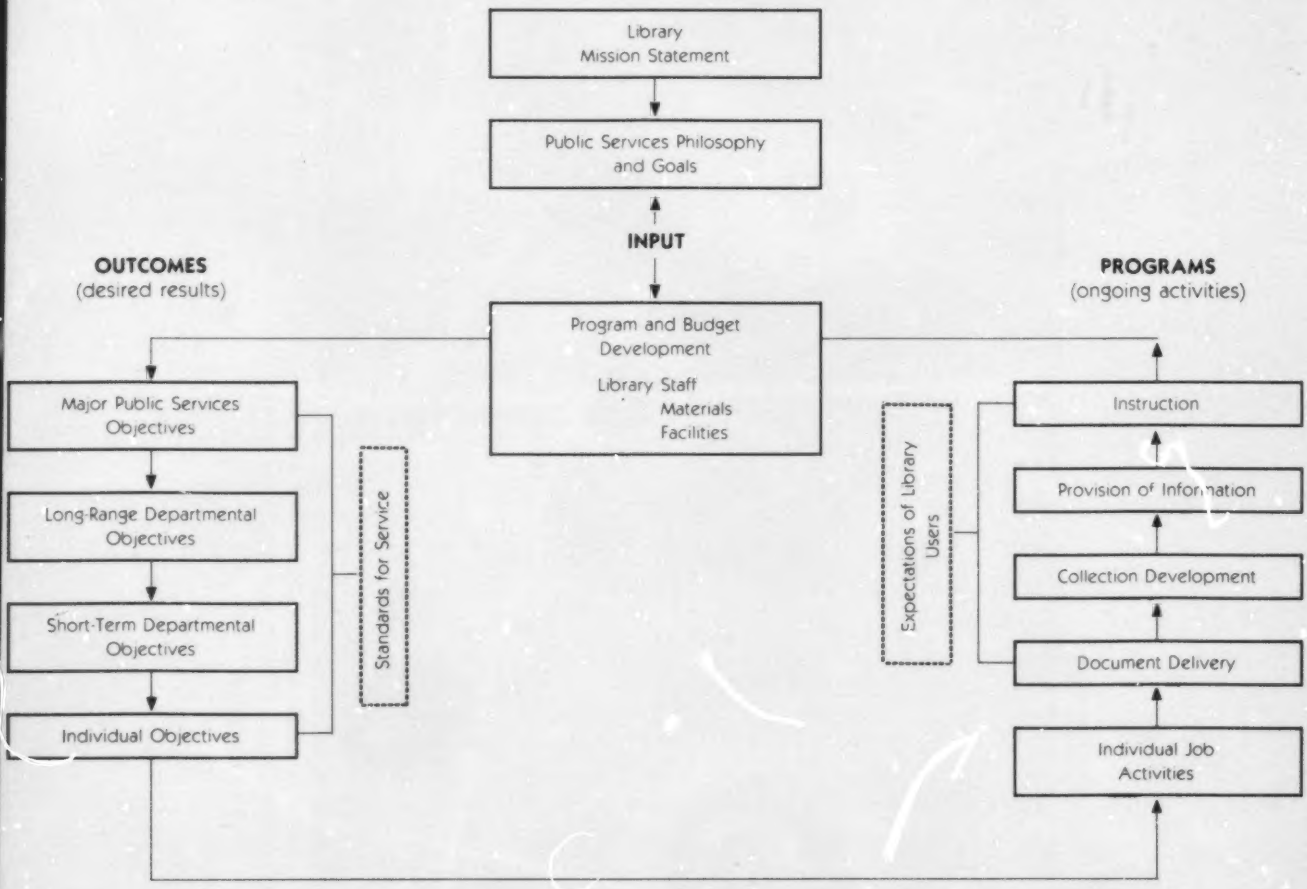
- Promotes staff discussion and involvement
- Requires definition of ambiguous terms like "high quality service"
- Encourages development of specific standards within the library
- Highlights major public services objectives within the library
- Increases user awareness of library activities
- Provides information for decision-making and allocation of resources
- Increases accountability
- Provides the basis for more objective evaluation of individual performance

In addition, the long-term impact of a successful program can substantially improve the internal effectiveness and external image of public services. The extended timeframe of performance measurement becomes an advantage if the various stages are used to encourage attitudinal changes among library staff and users.

The details of a performance measurement program are dictated by the needs and objectives of the individual library. Nevertheless, it is possible to diagram the major components of the process in a systematic way and to analyze the common factors which will contribute to the success of any performance measurement effort. The following model provides such an overview of the general process of performance measurement for public services, in outline form and through some simple, practical examples.

This model addresses some of the inherent difficulties of performance measurement for public services: formulating measurable objectives, standards for service; discriminating between long-range efforts and immediate, short term priorities, and integrating the library user

MODEL OF PERFORMANCE MEASUREMENT FOR PUBLIC SERVICES



into public services activity. It also builds upon the progress that many libraries already have made in implementing one or another aspect of performance measurement. The statistics now being collected, or the objectives already discussed, can become building blocks for a more comprehensive program. Each element in the process contributes in some way to the goal of improving library services.

PREREQUISITES

Library Mission Statement

Library mission statements may seem too remote or too general to have any influence on public services performance. However, Thomas Peters makes the point in *In Search of Excellence* that one hallmark of a well-run company is a mission statement that is known and internalized by employees. If the mission of an IBM or a Proctor & Gamble can inspire pride and performance in its staff, perhaps it is time to take another look at library mission statements. A good mission statement, according to Peters, should capture what is unique about the organization as well as provide some sense of its top priority. Whether an academic library views its mission in terms of public services is an important indicator of the outlook of administration and staff.

Public Services Philosophy and Goals

Each library, and probably each individual librarian, has a slightly different philosophy of public services. Like the mission statement, the synopsis of public service philosophy can express a consensus about the most important aspects of service for a particular library, rather than a collection of cliches. The process of achieving this consensus among public services staff can be used as an opportunity to promote discussion of the essentials of good service. This type of discussion is too frequently neglected in the midst of day-to-day demands at the circulation and reference desks. But it is essential for the successful formulation of measurable objectives which must take place later in this process.

It has been demonstrated repeatedly that measurement of one specific objective can lead to goal displacement. Individuals focus their attention and effort on the activity which is being measured, often to the neglect of less measurable, but more important, goals. This is a particular danger in public services, where some of the most basic objectives are the most difficult to quantify.

INPUT

Program and Budget Development

Library Staff, Materials, Facilities

Measurement of input is the most basic stage of evaluation. Viewed in isolation, the level of library support for public services staff and facilities is not particularly meaningful. The number of questions the reference staff can answer, the number of users the building can accommodate and so on, must be related to the needs and expectations of the users and the objectives for library service in order to judge the adequacy of input. This model presumes an annual cycle of performance measurement, in which the public services program and budget are sensitive to the results of evaluation. If performance measurement does not affect decisions at this level, then it is necessary to re-examine the value of the program. Hence, the influence on program and budget allocation becomes itself one measure of the effectiveness of the performance measurement process. One other factor in considering input is the recognition that all library staff ultimately have an impact on public services activities. Cataloging backlogs, for example, will adversely affect the availability of new materials, and problems with card catalog maintenance may inhibit access to information. Decisions about input, then, take into account the whole library situation.

OUTCOMES

Objectives

Clear objectives are the cornerstone of the performance measurement process. Most guides to evaluation research, and most librarians, would agree with these statements:

> *"A basic step in evaluation is the identification of objectives and their measurement."* [1]

> *"The goal must be clear so that the evaluator knows what to look for .. The goal has to be specific. It must be able to be translated into operational terms and made visible. ...For evaluation purposes, the goal has to be measurable."* [2]

> *"There is popular agreement among those concerned with program evaluation that one of the most critical and also difficult phases in this process is clarification of a program's objectives."* [3]

Nevertheless, the specification of measureable objectives for public services often has been a stumbling block. Many librarians would sympathize with the following statement:

> *I have found that one of the most deadly ways to begin a program evaluation process is to ask program staff to engage in a "goals*

clarification process." Yet it remains true that without direction programs will flounder: If you don't know where you're going, you won't know whether or not you've gotten there. Goals statements can be extremely helpful in focusing program activities and efforts.

Part of the difficulty, I am convinced, is the terminology. Goals and Objectives. These words have taken on an awesome quality that strikes fear in the hearts of program staff. Goals and objectives become haunting weights that program staff feel they have to carry around their necks, burdening them, slowing their efforts, and impeding rather than advancing their progress. [4]

An additional problem with measurable objectives has already been mentioned. They tend to focus attention on one aspect of an organization: "Even where performance measures are instituted purely for purposes of information, they are probably interpreted as definitions of the important aspects of that job or activity and hence have important implications for the motivation of behavior." [5]

Especially in the early stages of a performance measurement program it may be most effective to include all objectives which are important to the staff rather than limiting discussions to a few, easily quantifiable outcomes. As the process is implemented, more precise measures can be devised:

It is desirable to have as much precision as possible and, where appropriate, measures should be quite precise and quantitative. However, by separating the process of goals clarification from the process of goals measurement, it is possible for program staff to focus first on what they are really trying to accomplish and to state their goals and objectives as explicitly as possible without regard to measurement, and then to worry about how one would measure actual attainment of those goals and objectives. This makes it possible, over time, to keep the same goals and objectives but to change the measure as the state of the art of measurement progresses. [6]

In accordance with the definition in Part I, performance measurement is meant to provide an *indicator* of how an organization functions; all activities do not need to be measured. Once the public services staff has agreed on which objectives have priority, a selected series of measurements can be used to provide a barometer of overall performance. It is desirable to limit the performance objectives to a number which can be measured regularly and which will yield the results needed for making decisions about priority services. Libraries are already collecting statistics in many areas; some of these may become the raw data for performance measurement. Often a number of small measures, carefully analyzed, will be a reliable indicator of progress toward the key objectives.

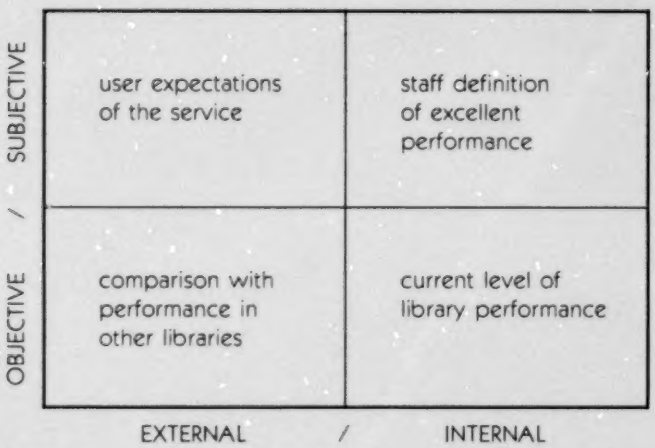
Staff involvement is important during all stages of the performance measurement process; it is most vital in establishing consensus about objectives. Once this has been achieved, in-

dividual staff members or committees can take responsibility for other phases of the process, with overall coordination from the head of public services.

Two factors are crucial in establishing the key measurable objectives for public services — standards for service and user expectations.

Establishing Standards

Performance measurement implies a standard of service that will be used to judge the results of an activity. At some point, therefore, the general objectives for "high quality" service must be linked to a precise standard, or a measurable range of acceptable output. Public services standards may be based on internal or external criteria, or a combination of both. This model suggests that four factors be taken into consideration when setting a standard for the quality of service.



The weight given to each factor will vary from library to library depending on the priority assigned to different services and the resources available. One of the advantages of performance measurement is that it provides a dynamic balance among the four factors. Existing levels of service can be measured against performance levels in other libraries and at the same time be responsive to the needs of a particular library clientele. For example, a library may find that its existing interlibrary loan service compares well to that of other, similar institutions. However, if a significant number of faculty express dissatisfaction with the service, this will trigger a re-examination of the service standards.

At other times, the library staff may suggest implementation of a higher standard, based on their knowledge of what has been accomplished in other libraries, even without a particular user demand.

User Expectations

One of the challenges of performance measurement is to make implicit user expectations about library services an explicit component in the evaluation process. User opinion can be otained through formal surveys, derived from anlaysis of previous evaluation study results, deduced from interactions with library staff, or solicited on a one-to-one basis. No matter how they are obtained, these expectations will differ among categories of users and can cover a range from the most to the least demanding in terms of specific library services.

A number of studies have shown that users tend to be satisfied with the existing level of service. Only a small minority will register a complaint or even express dissatisfaction strongly on a survey instrument. This has several implications for performance measurement. Any standards which are consistently at a lower level than user expectations should be examined carefully. This is an area where library resources or staff performance are likely to need change. If it is determined that expectations are unrealistically high, a public relations or user education program may be indicated; this will help to establish a balance between what the library can provide and what level is expected.

PROGRAMS

The other element of performance measurement is a careful analysis of existing services and selection of certain key programs for ongoing study. For the purposes of this discussion, public services programs have been grouped into four main categories: document delivery, collection development, information, and instruction. Individual job activities include some or all or these categories, as well as "organizational maintenance" functions such as attending meetings, serving on committees, keeping statistics, etc.

Each of these categories is made up of many distinct public services activities. Part of the preliminary stage of performance measurement is general discussion among the public services staff about the relative priority of each activity and its contribution to stated objectives. On the basis of this discussion, a small number of key activities will be selected to be analyzed in detail. The librarians will determine:

1) the kinds of measurement possible, based on existing or easily collected data

2) user expectations about how the service should operate, as defined through surveys, previous evaluation studies or direct communication with users

3) standards of service that have been established for the particular activity

4) outcomes — the long-range, short-term and individual objectives which are to be accomplished

5) evaluation methodology — comparison of outcomes with established standards and user expectations.

As a result of the process it should be possible to make decisions based on the measured level of performance, and to answer questions such as: Were the standards realistic? Is the level of input (staff, materials) adequate? Have user expectations been met? These questions will in turn affect the planning and budgeting process for public services.

Simple examples of performance measurement for specific activities are included with each category of service to further illustrate the process.

Document Delivery

Perhaps because document delivery lends itself to quantitative measurement, it has become a favorite variable in library performance studies. Libraries traditionally have collected data on the number of items circulated, the number of interlibrary loans, the number of requests for recall of materials in circulation and so on. Such data is extremely useful as a basis for evaluating this aspect of library service. The methodology for manipulation and analysis of document delivery data is also well developed and can be designed to take into account the user perspective on delivery (see, for example, the discussion on availability and accessibility measures in Kantor, *Objective Performance Measures for Academic and Research Libraries).* Specification of document delivery, therefore, is more likely to be already underway in some form in the academic library. User expectations in this area can be stated in terms of the percent of material available on the shelf, the percent available through interlibrary loan or other cooperative arrangements, and the amount of time necessary to obtain a particular item.

Example: Interlibrary Loan

1) Possible kinds of measurement
   number of requests from library users
   number of requests sent
   number of requests received
   % of requests successful
   time between date of request and date sent
   time between date sent and date received
   average turnaround time

2) User expectations
   most (over 80%) of my requests should be filled within 3 weeks

3) Standards
   past library performance has been a success rate of 85% with an average turnaround time of 24 days; turnaround at other local libraries has been between 2 and 4 weeks

   staff determines that an 85% success rate with 2-3 week turnaround time will be the standard for excellent interlibrary loan service

4) Objectives

long range: to improve access to materials not available in the library collection

short-term: to fill 50% of interlibrary loan requests after 2 weeks, 85% after 3 weeks

individual: to verify and send 60% of all borrowing requests after 1 week, and 90% after 2 weeks.

5) Evaluation

measure the % of requests filled within the specified time

Collection Development

Public services librarians may have direct responsibility for selecting materials or may advise subject bibliographers or faculty liaisons. In any case, public services provides the interface between the library user and the results of collection development policy and decision-making. A decision to limit acquisitions in certain subject fields because of the availability of resources at other libraries will affect the standards which are feasible for access to materials, and the demands placed on services such as interlibrary loan. User expectations can range from the undergraduate who wants all materials to be available immediately in the library to the faculty member who expects to make regular use of interlibrary loan. The size of the collection budget, the existence of graduate programs in particular subject fields, and the depth of the collection will obviously help to determine standards for quality service.

Example: Collection Development
Journal Holdings

1) Possible kinds of measurement

% of items in standard bibliographies
% of items cited in faculty publications
% of items in data base searches performed

2) User expectations

basic materials needed for research and study should be available at the library collection; there have been complaints from groups of faculty that the library's journal holdings in their areas are inadequate

3) Standards

subject bibliographers compare current journal holdings to standard bibliographies for selected subject areas. Library holdings are in the 50%-60% range.

by conducting a study of citations in faculty publications, the head of public services determines that the current range of availability is
40-50% for journals
80-85% for monographs

comparable libraries have a range of
75-80% journals
85-90% monographs

After discussion with the library administration, a budget request is submitted to increase journal holdings selectivity by concentrating on certain subject areas which offer the Ph.D. and are at the low end of the existing range. These are also the areas which have been the subject of user complaints.

4) Objectives

long-term: build a collection which is responsive to faculty research needs

short-term: provide 75% of the journals and 80% of the monographs needed by faculty for research projects in targeted subject areas

individual: identify the 50 biology journals most frequently cited in faculty research publications and develop a priority list in cooperation with the faculty. Add highest priority titles as funds become available

5) Evaluation

follow-up citation study to determine % of cited titles now held in targeted areas

Provision of Information

Although it is not always possible in practice to separate information from instruction, there is an important theoretical distinction from the user point of view. Information is an end in itself, while instruction represents a means for obtaining future information. Public services staff may make a judgment that a user *needs* instruction, but most often users present requests for information. Which category of activity receives the most emphasis reflects the public services philosophy at the particular library. Provision of information is most often specified by counting the number of questions answered at library service points, the number of data base searches conducted, and so on.

Some libraries distinguish between "reference," "information" and "directional" questions, and record statistics accordingly. Collection of these statistics does not provide any indication about the quality of service, however, and this is a difficult area to measure objec-

tively. Both users and staff would agree that *all* questions should be answered fully and accurately. Nevertheless, objective studies of reference service have shown that in fact almost half of the sample questions are not answered correctly.[7] If accurate information service is a high priority public services goal, then the staff may wish to work on devising an objective measurement that can be used to determine the existing performance level. Although it may be difficult to accept anything less than 100% performance in providing information, a realistic measurement, coupled with a strategy for improving individual performance, is more beneficial than assuming "high quality service."

Example: Questions at the Reference Desk

1) Possible measurements
   number of questions answered (quantitative)
   number answered correctly (qualitative)
   - self-reporting
   - peer observation
   - supervisor observation
   - unobtrusive "planted" questions
   - objective-testing
   - user feedback

2) User expectations
   almost all questions (95%) should be answered correctly by reference librarians; however there have been no complaints about incorrect answers

3) Standards
   a combination of objective testing and unobtrusive questions determines that the current range of correct responses is between 50 and 70%, depending upon the subject area and the individual librarian

   staff expectations are that this should be increased to 80-90% as the standard for "quality service" over the next 2 years

4) Objectives
   long-term: to answer the highest possible percentage of reference and information questions completely and accurately

   short-term: to increase the average range of correct responses from 50% to 80% within two years

   individual: to study the sources in business and government documents (or whatever areas of need have been identified)

   to refer questions to other librarians or to outside sources as needed

   to increase the number of correct responses

5) Evaluation
follow-up study on the number of questions answered correctly

Example: Information Service
Data base searching

1) Possible measurements
# of searches performed
# of citations generated
turnaround time (request to results)

2) User expectations
a) last year 25% of requests were searched same day, 60% after one day and 85% after 2 days

staff agrees that standard should be 75% of requests have some results by next day

b) no data available on % of citations which are useful — agreement that 80% is reasonable standard, based on review of pre-search screening and interview procedures

c) relates to document delivery and collection development performance, but users don't make those fine distinctions
no data has been collected on availability of citations
sample can be run to determine
a) in house
b) CRL
c) ILL
location
standards can be developed for these, if desired, e.g.,

efficient = 80% results by next day
effective = 80% of citations are relevant

decide to focus on standards for turnaround time and relevance of citations as key performance measures

4) Objectives

long-term: to provide results of data base searching as quickly as possible

short-term: user should have some results the next day for 75% of search requests

individual: conduct 50% of searches on the day of the request, 80% by the next day

5) Evaluation

% of searches done within specified time
survey of users to determine % of useful citations

Instruction

Broadly defined, instruction is any activity which enables the library user to locate information or documents independently. The potential for such instruction exists in almost every interaction between public services staff and library users, whether in the classroom during a bibliographic instruction session, at the card catalog, or in the library stacks where a user is searching for a misinterpreted call number. This complicates the measurement and evaluation process, since a narrow measurement of designated BI sessions may not reflect the amount of resources dedicated to instruction. Nonetheless, as a minimum the different types of instruction, the intended audience and the number of recipients can be measured.

Example: Instruction
Freshman Orientation program

1) Measurement

# of students who participate
# of sessions/tours conducted

2) User expectations

students
- find out location of library
- learn how to use major services (checking out books, reserves, etc.)
- become familiar with some library materials

3) Standards

can be defined in terms of the number of students reached and the level of learning attained based on measurement of previous years, e.g., after orientation is completed, 100% of freshmen will know where the library is; 80% will know how to check out materials; 60% will know how to use the card catalog, etc.

staff expectations of the program will relate to the time which is invested, and the possibility to follow-up

4) Objectives

long-range: to provide basic library orientation for all students during freshman year

short-term: to conduct 25 library tours and 30 instructional sessions for freshmen during the first 4 weeks of the semester.

individual: to design and conduct an orientation program on the card catalog

5) Evaluation

measurement of the amount of information retained by students after the orientation program is completed

These simple examples are illustrative rather than prescriptive. They are derived from two medium-size academic libraries, but the process represented can be applied to any size library.

NOTES
PART II

1. Caro, Francis G. (ed) *Readings in Evaluation Research.* (N.Y.: Russell Sage Foundation, 1977): 26.

2. Suchman, Edward A. *Evaluative Research* (N.Y.: Russell Sage Foundation, 1967): 28.

3. Schulbert, Herbert C. and Baker, Frank, "Program Evaluation Models and Implementation of Research Findings," in Caro, *Readings in Evaluation Research,* p. 56.

4. Patton, Michael Quinn, *Practical Evaluation* (California: Sage Publications, 1982): 102.

5. Ridgway, V.F., "Dysfunctional Consequences of Performance Measurement." *Administrative Science Quarterly,* 1 (1), p. 247.

6. Patton, p. 104.

7. Altman, Ellen, "Assessment of Reference Services," in *The Service Imperative for Libraries* Gail A. Schlachter (ed), (Colorado: Libraries Unlimited, 1982) p. 175.

PART III

FUTURE TRENDS IN PERFORMANCE MEASUREMENT

Will performance measurement become commonplace in academic libraries, or will it continue to be much discussed and little used? There are a number of trends in library management that encourage the development of performance measurement for public services. Among these are the need for hard data and objective results to justify maintenance or expansion of library services, and the recognition that academic libraries are complex organizations which cannot be managed effectively without such data. There is also increased pressure for standards at all levels, from individual performance evaluations to comparisons among groups of libraries. "Objectives" and "performance" have become bywords for the 80s.

Working against widespread implementation of performance measurement are the large commitments of time and staff it requires. More subtly, there is an attitude that many library services do not lend themselves to objective measurement and that excellence cannot be translated into statistics. As with any new program, there is also a fear of the unknown and a reluctance to change existing practice. These factors need to be addressed before performance measurement can be successfully adopted by any library.

Advances in both technology and evaluation methodology have the potential to reduce the time involved in data collection and analysis. Most academic libraries now have access to personal computers and software which can handle sophisticated statistical manipulations. A systems approach to evaluation makes it possible to link organizational performance and individual evaluation, and to use the results of this process in planning for library services.

There are, however, many questions still to be resolved. Most important, perhaps, is how to change existing attitudes about measurement and quality of services by fostering a positive outlook toward evaluation and change. Other issues include identifying key variables within the complex framework of public services in an academic library; defining standards for "ex-

cellent service" which will allow for consistency and more comparison of results among libraries; integrating public services measures with the evaluation of technical services and other areas of the library; and developing more effective ways to collect and respond to user feedback.

Such questions can be addressed at great length through discussion, but can only be resolved through what happens in practice. If performance measurement is to be accepted and adopted, we can expect to see the following progression:

- academic libraries make a commitment to some form of performance measurement for public services
- methodologies are selected by individual libraries and tested over a period of several years
- libraries report the results
- methodology is refined as needed
- implementation of performance measurement becomes a routine component of public services

Throughout these changes, the most convincing evidence for the benefits of performance measurement will be the improvements in service which are generated by successful programs.

A SELECTED BIBLIOGRAPHY ON PERFORMANCE MEASUREMENT IN LIBRARIES

General Background

Burns, Robert W. Jr., "Library use as a performance measure: Its background and rationale," Journal of Academic Librarianship 4 (March 1978): 4-11.

A general overview of the importance of studying library use. Summarizes the various methods available, and discusses the patterns which have emerged from earlier studies. Includes extensive references to related articles.

Gore, D. "The mischief in measurement," Library Journal 103, 9 (May 1, 1978): 933-937.

Points out the problems of using invalid measurements or drawing false conclusions from limited data. Specific examples of measuring availability and holdings rates.

Hamburg, M., Ramist, L., Bommer, M. "Library objectives and performance measures and their use in decision making," Library Quarterly 42, (1972): 107-123.

Focuses on user exposure to documents (circulation, in-house use, etc.) as the key measure of library performance. Also presents a method for calculating costs associated with library services.

Lancaster, F.W. The measurement and evaluation of library service (Washington, D.C. : Information Resources, (1977).

An excellent introduction to issues, methods and problems in library evaluation. Reviews the literature on evaluating services and suggests the need for new methods. Includes reference, document delivery and collection development, as well as technical services.

Morse, P.M. "Measures of library effectiveness," Library Quarterly 42, 1 (1972): 15-30.

Explains the use of mathematical models to determine the effectiveness of various library services. Data on library use, book use, circulation over time and prediction of future circulation are presented in detail.

Orr, R.H. "Measuring the goodness of library services: A general framework for considering quantitative measures," Journal of Documentation 29, 3 September 1973): 315-332.

Explores the rationale for measuring services and provides a model for direct and indirect measures of quality and value. Six categories of service are proposed 1) document; 2) citations; 3) answer; 4) instruction; 5) facilities; and 6) adjunct.

Rzasa, P.V. & Baker, N.R. "Measures of effectiveness for a university library," Journal of the American Society for Information Science (July-August 1972): 248-253.

Measures the effectiveness of service on three factors: the number of material and information items desired by user; the number of satisfactorily answered inquiries and the number of users.

Salverson, Carol A. "The relevance of statistics to library evaluation," College & Research Libraries (July 1969): 352-361.

Suggests a systems approach to library evaluation and discusses the use of statistics in that context. Also includes a brief discussion of the types of data which should be collected for evaluation purposes.

Saracevic, T., Shaw, W., & Kantor, P.B. "Causes and dynamics of user frustration in an academic library," College & Research Libraries 36 (1977): 7-18.

A study of library effectiveness based on measures in four areas; acquisitions policy, circulation policy, library operations, and library users, based on a "branching" analysis of frustration survey data.

White, G. Travis "Quantitative measures of library effectiveness," Journal of Academic Librarianship 3, 3 (July 1977): 128-136.

A review of the major quantitative approaches proposed for evaluation of library services through 1976. Heavy emphasis on use of formulas as the basis for analyzing different library functions. Most useful in providing background to the major work done in this field. This article is a good starting point for those interested in a variety of methods for library measurement.

Working Group on Performance Measurement Performance measurement in federal libraries: A handbook Council of Federal Libraries Publication Service, (Quebec: National Library of Canada, 1979).

A detailed discussion of the concept of performance measurement and the steps required for library implementation. This is one of the best practical sources for those planning a performance measurement program.

Collection Development

Buzzard, M.L. & New, D.E. " An investigation of collection support for doctoral research," College & Research Libraries 44 (Nov. 1983): 469-75.

Uses citation analysis of recently completed doctoral dissertations to measure the level of support which the University of California Irvine provides for graduate student research.

Hodowanec, G.V. "Literature obsolescence, dispersion, and collection development," College & Research Libraries 44 (Nov. 1983): 421-43.

Provides a method to calculate both the immediate use and the rate of obsolescence of academic library acquisitions on the basis of circulation data. Relates the findings to collection development decisions and acquisition priority weighting.

Wiemers, Eugene, Jr. Baldwin, Carol Ann; Kautz, Barbara, Albrecht, Jean, Lomker, Linda H. "Collection evaluation: A practical guide to the literature," Library Acquisitions: Practice and Theory 8 (1984): 65-76.

Summarizes the general literature on collection evaluation and provides a detailed analysis of various methodological approaches. The discussion of strengths and weaknesses of each approach is especially useful.

Document Delivery

Kantor, Paul B. Objective performance measures for academic and research libraries (Washington, D.C.: Association of Research Libraries, 1984).

Outlines a specific method for measuring document availability and delay in work flow (such as in ILL). In addition, this provides a very clear, readable introduction to managing performance studies and using statistics.

Mosborg, S.F. "Measuring circulation desk activities using a random alarm mechanism," College & Research Libraries 42 (1981): 437-444.

Discusses the use of work sampling techniques based on recording desk function at random times throughout the day. Concludes that this is a practical method for evaluating all of the activities of a large staff working extended days and weeks.

Pizer, I.H. & Cain, A.M. "Objective tests of library performance," Special Libraries 59 (Nov. 1968): 704-711.

Reports the results of a study funded by the National Library of Medicine to develop methods for collecting objective data for improving biomedical libraries. Includes methodology for a document delivery test, including a sample data collection sheet. Tests capability for basic reference service include verifying citations and answering factual questions.

Roberts, M.& Cameron, K.J. " A barometer of 'unmet demand': Interlibrary loans analysis and monographic acquisitions," Library Acquisitions: Practice and Theory 8, 1 (1984): 31-42.

An analysis of interlibrary loan statistics for a large university library in Scotland. Relates the results to collection development policy. Most monographic loan requests are for relatively recent (70% within the past decade) and inexpensive books.

Young, B. "Circulation service: Is it meeting the user's needs?" Journal of Academic Librarianship 2 (1976): 120-5.

Discusses shelf failure as a major area of user frustration; also analyzes student/faculty loan periods in relationship to circulation performance.

Reference and Information Services

Bunge, Charles A. "Planning goals and objectives for the reference department," RQ 23 (Spring 1984): 306-15.

> Outlines the need for reference goals and objectives and suggests a process for developing these through analysis and discussion.

Ciucki, Marcella "Recording of reference/information service activities: A study of forms currently used," RQ 16:4 (Summer 1977): 273-83.

> An overview of the variety of reference statistics and forms used by different types of libraries. Numerous samples are reproduced.

Halperin, Michael "Cluster sampling reference transactions," RQ 17:4 (Summer 1978): 328-33.

> Provides examples of the use of cluster sampling and compares this method to individual transaction sampling as a means for collecting data about reference transactions. A good basic introduction to both methods of sampling.

Jennerich, E.Z. "Before the answer: evaluating the reference process," RQ 19 (Summer 1980): 361.

> Discusses the components of a reference interview and points out which aspects can be measured or evaluated by available methods. Stresses the need to change as a result of evaluation processes.

Kantor, Paul B. "Quantitative evaluation of the reference process," RQ 21 (1) (Fall 1981): 43-52.

> Uses librarian's self-reporting to analalyze the behavioral outcomes of the reference process and the causal functions that may inhibit the delivery of reference service.

Olson, Linda M. "Reference service evaluation in medium-sized academic libraries: A model," Journal of Academic Librarianship 9 (January 1984): 322-329.

> Discusses the importance of objective evaluation of reference services. The model presented covers four aspects of service: reference staff's current level of performance in response to 1) queries for factual information; 2) questions involving library policies, procedures or services; 3) in providing instructions in the use of reference services; and 4) on reference questions involving the need for question negotiation. Specific techniques for implementation of an evaluation program are provided.

Rothstein, S. "The measurement and evaluation of reference service," Library Trends 12 (January 1964): 456-472.

> An overview of the basic questions and problems involved in evaluating reference. Although some of the methodological points are outdated, the general summary of types of measurement is helpful.

Selegean, J.C., Thomas, M.L. and Richman, M.L. "Long-range effectiveness of library use instruction," College & Research Libraries 44 (Nov 1983) : 476-80.

Reviews a variety of methods used to evaluate bibliographic instruction programs and proposes a study of the long range effects of BI (eventual academic success, student retentions and graduation rates). The study data reported showed significant differences between study and control groups in the grade point average and persistence rate, but not in graduation rate. This method is suggested as a supplement to other types of evaluation for Bibliographic Instruction.

Tierno, M.J. and Lee, J.H. "Developing and evaluating library research skills in education: A model for course - integrated bibliographic instruction," RQ 22 (Spring 1983) : 284-91.

Discusses a pilot program developed at Lake Forest College. The evaluation component of the project, and its effect on subsequent planning, are well covered.

White, H.D. "Measurement at the reference desk," Drexel Library Quarterly 17 (Winter 1981) : 3-35

Introduces the use of statistical analysis of reference data through SPSS (Statistical Package for the Social Sciences). Shows how to combine variables to generate management information about levels of service, staffing requirements and existing priorities.

Other Types of Libraries

Altman, E., Deprospo, E, Clark, P.M., and Clark, E.C. A data gathering and instructional manual for performance measures in public libraries (Chicago, Celadon Press, 1976).

A practical, step-by-step procedure is presented. Many of the recommended measurements can be adapted easily to academic libraries.

McClure, Charles R., and Reifsnyder, Betsy, " Performance measures for corporate information centers," Special Libraries 75 (July 1984) : 193-204.

Reviews the current applications of performance measurement in special libraries, and suggests that such measurement should be part of an ongoing planning process. Examples of public library performance measures are presented, along with possible adaptations to the corporate information center setting.

Moore, Nick "Standards versus performance measurement," Public Libraries 20 (Winter, 1981) : 99-102.

Schrader, Alvin M. "Performance measures for public libraries: Refinements in methodology and reporting," Library Research 2 (1980/81) : 129-155.

Warden, Carolyn L. "User evaluation of a corporate library online search service," Special Libraries 72 (April 1981) : 113-117.

Wood, J.B.; Bremmer, J.J.; and Saradiridas, S.A. "Measurement of service at a public library," Public Library Quarterly 2 (2) (Summer 1980) : 49-58.

Zweizig, Douglas & Rodger, Eleanor Jo Output measures for public libraries: A manual of standardized procedures (Chicago: ALA, 1982).

Presents a method and format for collecting and interpreting data on public library performance.